

THE BIODIVERSITY OF AUSTRALIAN MYGALOMORPH SPIDERS. I.  
TWO NEW SPECIES OF *NAMIREA* (ARANEAE: DIPLURIDAE).

ROBERT J. RAVEN

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Two new species of *Namirea*, *N. dougwallacei* and *N. johnlyonsi*, are described from northern Australia. This is the first record of males from the region. Males of *N. dougwallacei* appear to pose a phylogenetic dilemma because of homoplasies with *Australothele*.

□ *Mygalomorphae*, *Dipluridae*, taxonomy, phylogeny, *Namirea*, biogeography, biodiversity, disturbance, Australia.

Robert J. Raven, Queensland Museum, PO Box 3300, South Brisbane, Queensland 4101, Australia; 4 July 1993.

The genus *Namirea* was described by Raven (1984) along with other ischnotheline diplurids from Australia. *Namirea* included five new species. The genus is found in areas from Mt Lewis, NEQ, through southeastern Queensland, to the Blue Mountains, NSW. Males of the genus were known only in the southern portion of its range. The most northerly known males of *Namirea* were of *N. planipes* which is widespread in open forest areas and found commonly in roadside embankments in southern Queensland. Here two new species including males from the northern part of the range are described. Their morphology, especially that of males, allows a better understanding of the relationships of the group. Methods are explained in Raven (1984).

SYSTEMATICS

*Namirea* Raven, 1984

*Namirea dougwallacei* sp. nov.

(Figs 1-4. Tables 1, 2)

MATERIAL EXAMINED

HOLOTYPE ♂, ALLOTYPE ♀, Mt Archer, summit, 23°21'S 150°35'E, MEQ, D. Wallace, May 1984, QMS19706, 19707.

DIAGNOSIS

Males differ from those of all other *Namirea* with known males in having a mounded spur on tibia I and from *Australothele* in lacking the secondary spine on the spur and the metatarsal thorn on leg II. Females differ from those of *N. eungella* in the spermathecae having three, rather than only two, spiralled loops, a larger basal lobe and longer apical lobe.

Medium-sized; carapace length ca. 5. Preening

combs present on metatarsi I, II, IV. Spermathecae two, each an inner long sclerotised spiralled duct with short straight unsclerotised outer lobe. MALES. Tibia I subdistally incrassate with group of strong retrolateral spines; metatarsus I basally incrassate, distally arched; retrolaterally a low but distinct mound, set on retroventral corner, with strong spines almost forming a scoop; a long broad depression defined below by distinct keel from proventral corner proximally rising to upper junction with metatarsi. Leg II, viewed prolaterally, distally a long conical spur capped with short conical megaspine; two long upcurved spines on edge above spur.

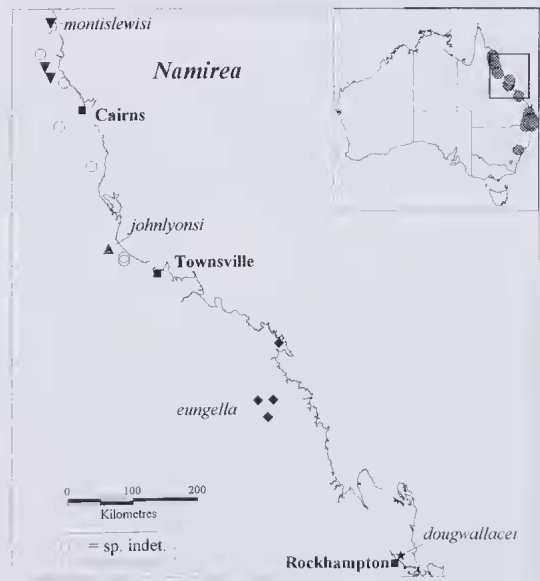


FIG. 1. Records of *Namirea* in north eastern Queensland; inset shows known range.

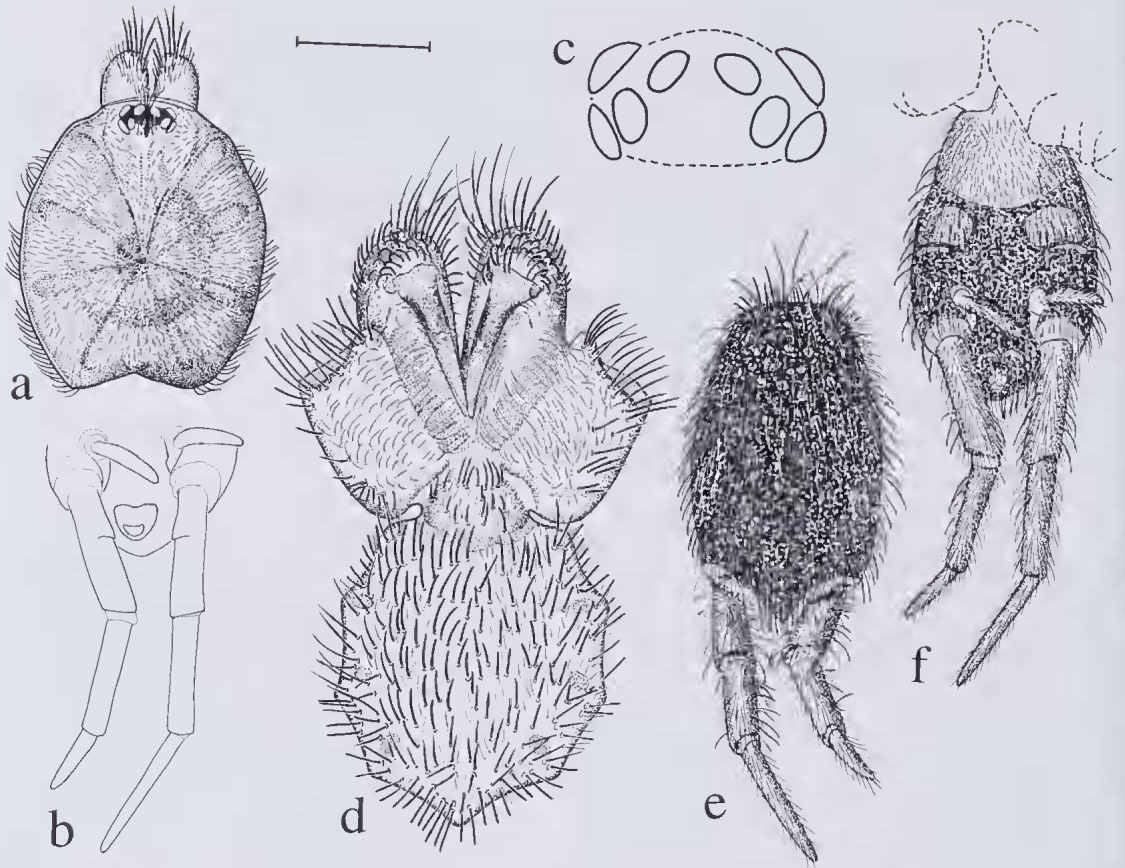


FIG. 2. *Namirea dougwallacei* sp. nov., holotype ♂ (QMS19706). a, carapace & chelicerae, dorsal view; b, spinnerets, ventral view; c, eyes, dorsal view; d, chelicerae, sternum, maxillae & labium, ventral view; e, abdomen, dorsal (e), ventral view (f). Scale line = 1mm (d); 2mm (a, b, e, f); 0.5mm (c).

#### ETYMOLOGY

The specific epithet is a patronym in honour of Mr Doug Wallace, renowned arachnologist of Rockhampton, who prepared detailed and thorough arachnid displays for the Queensland Ambulance Service and Rockhampton Botanical Gardens, from which the types were 'rescued'.

#### DESCRIPTION

Holotype male QMS19706

Carapace 4.88 long, 4.00 wide. Abdomen 4.60 long, 3.20 wide. Total length, 10.

*Colour in alcohol.* Carapace yellow brown with darker lines posteriorly on caput and beside anteromedial line, chelicerae, and legs yellow brown, none banded. Abdomen dorsally and ventrally dark brown without pattern.

*Carapace.* Caput low. Pilosity: light cover of fine brown and silver hairs; striae broad, shallow. Bristles: one foveal pair; one very long and few finer on clypeal edge; all other setae slender,

similar. Fovea a short, straight transverse pit. Clypeus ca. 0.16 from ALE.

Leg	1	2	3	4	Palp
Femur	3.63	3.44	3.44	4.19	2.19
Patella	2.19	2.19	1.88	2.25	1.50
Tibia	2.31	2.38	2.38	3.25	1.63
Metatarsus	2.56	2.81	3.56	4.50	—
Tarsus	1.19	1.56	1.88	2.06	0.88
Total	11.88	12.38	13.14	16.25	6.20

Table 1. Leg lengths of *N. dougwallacei*, holotype ♂.

Leg	1	2	3	4	Palp
Femur	3.28	3.32	3.24	4.00	2.40
Patella	2.12	2.12	2.00	2.28	1.44
Tibia	2.16	2.20	2.24	2.96	1.60
Metatarsus	2.32	2.48	3.08	4.00	—
Tarsus	1.20	1.32	1.56	1.68	1.76
Total	11.08	11.44	12.12	14.92	7.20

Table 2. Leg lengths of *N. dougwallacei*, allotype ♀.

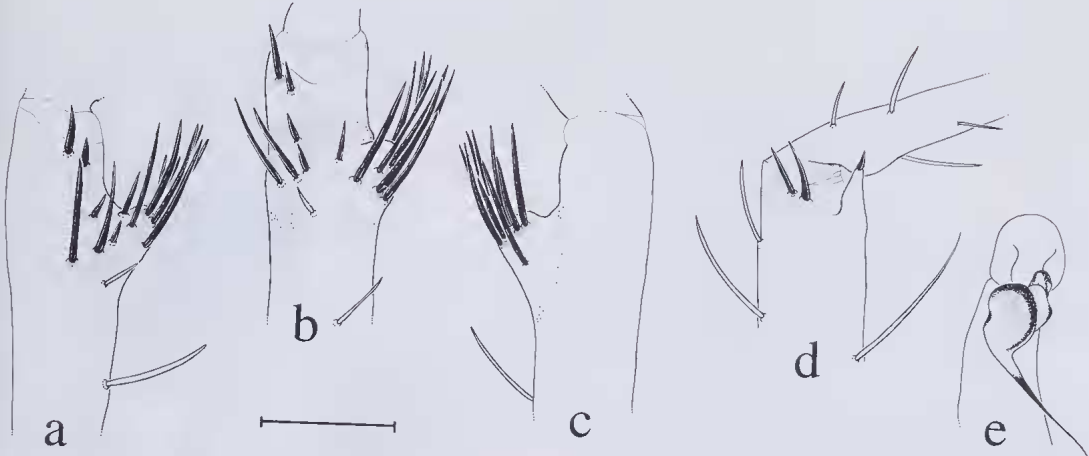


FIG. 3. *Namirea dougwallacei* sp. nov., holotype ♂ (QMS19706). a-c, left tibia I, prolateral (a), ventral (b), retrolateral (c) views; d, tibia & metatarsus II, prolateral view; e, tibia, cymbium & palpal bulb, ventral view. Scale line = 1mm.

**Eyes.** Tubercle distinct. Group occupies 0.50 of head-width; front width, length, 38:18. Front row procurved; back row recurved. MOQ front width, back width, length, 20:30:17. AME:ALE: PME:PLE, 10:11:9:10. Eye interspaces: AME-AME, 0.2; AME-ALE, 0.1; ALE-ALE, 2.0; PME-PLE, 0.1; PME-PME, 1.6; ALE-PLE 0.1.

**Chelicerae.** Small; wide band of long erect brown bristles prodorsally. Intercheliceral tumescence small, pallid, distinct. Furrow promargin with 5 large mixed with 8 smaller teeth, basomesally no teeth evident.

**Labium.** 0.50 long, 0.88 wide. Anterior edge pallid, not indented; setae cover uniform, no pattern. Labiosternal suture a narrow continuous groove.

**Maxillae.** 1.25 long in front, 1.18 long behind, 0.75 wide; anterior edge pallid. Heel truncated; anterior lobe well defined by long groove, lobe small; serrula distinct. No modifications or strong setae on anterior face.

**Sternum.** 2.50 long, 2.18 wide. Cordate, with strong 'shoulders' lateral of labium; setae on margin not enlarged; covered with long erect brown bristles. All sigilla small, oval with long axis transverse, within one length of margin.

**Legs.** I: viewed prolaterally, tibia subdistally incrassate with group of strong retrolateral spines evident; metatarsus basally incrassate, distally arched; retrolaterally a low but distinct mound, set on retroventral corner, with few small and 11 long strong spines almost forming a scoop, as in *Australothele*; a long broad depression defined below by distinct keel from proventral corner proximally rising to upper junction with metatar-

si. II: viewed prolaterally, distally a long conical spur capped with short conical megaspine; two long upcurved spines on edge above spur; metatarsus basally excavate, then a short incrassate mound quickly reducing to normal leg diameter. Preening combs: I, III, none; II, 1 of 2 weak setae proventrally; 1 of 5 strong setae on retrolateral IV. No scopula.

**Spines.** Distinction between 'spines' and thickened bristles subtle. Leg 1, fe d7, pa p1, ti p2, v 5 short distal, 3 long slender plus 10 long megaspines in retroventral group and 1 proventrally, me v2; ta, 0. Leg 2, fe d6, pa p4, ti p3, v2 + 3 megaspines, me p2, v5; ta, v4. Leg 3, fe d6, r1, pa p5, d4, r2, ti p3, d3, r3, v6, me p4, r3, v5; ta, p1, v4; leg 4, fe d4, r1, pa p4, r2, ti p3, d2, r3, v6, me p5, r6, v8; ta, p4, r1, v8; palp, fe d5, pa p1, d2, ti p1, r2, ta, 0.

**Claws.** 8 long teeth in S-shaped line on paired claws of I, IV, unpaired claws bare.

**Trichobothria.** Two rows, each of ca. 10 for 3/4 of tibiae; ca. 10-15 on metatarsi in line; ca. 10 filiform on tarsi.

**Palp.** Bulb reniform, quickly tapering to long slender embolus extending past basal tibia; cymbium short, indented, aspinose; tibia basally incrassate with cluster of many long bristles, distally excavate.

**Spinnerets.** PMS 1.25 long, 0.25 wide, 1.00 apart, and ca. 0.45 of basal PLS in diameter. Basal, middle, apical, total segments of PLS, 1.80, 1.88, 2.00, 5.68 long, respectively.

Allotype female QMS19707

Carapace 4.92 long, 4.08 wide. Abdomen 5.00 long, 3.60 wide. Total length, 11.



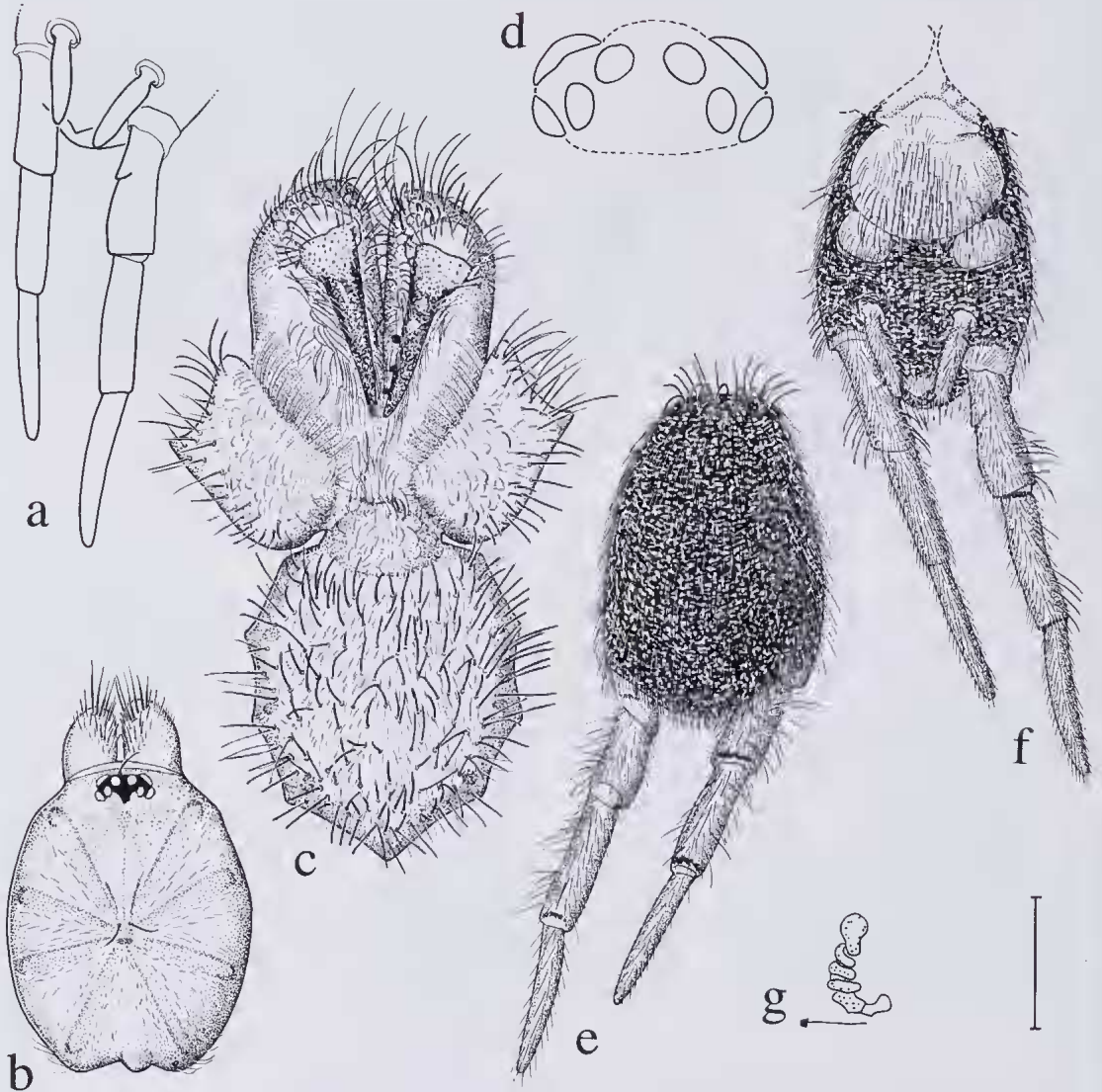


FIG. 4. *Namirea dougwallacei* sp. nov., allotype ♀ (QMS19707). a, spinnerets, ventral view; b, carapace & chelicerae, dorsal view; c, chelicerae, sternum, maxillae & labium, ventral view; d, eyes, dorsal view; e, f, abdomen, dorsal (e), ventral view (f); g, spermathecae. Scale line =2mm (a, b, e, f); 1mm (c); 0.5mm (d, g).

*Colour in alcohol.* As in ♂.

*Carapace.* Pilosity: as in ♂ but 2 pairs of foveal bristles. Fovea short, transverse; set 45% of carapace length from back edge. Caput low but sloping down to fovea. Clypeus width, 0.12 to base of tubercle.

*Eyes.* Tubercle distinct. Front row procurved; back row recurved. Group occupies 0.44 of head-width; front width, back width, length, 38, 38, 18, respectively. MOQ front width, back width, length, 20, 29, 15, respectively. AME:ALE: PME:PLE, 9:12: 7:10. Eye interspaces: AME-

AME, 0.3; AME-ALE, 0.2; ALE-PLE, 0.2; PME-PME, 1.9; PME-PLE, 0.1; ALE-ALE, 2.0.

*Chelicerae.* Geniculate, stout; setation like ♂. Furrow promargin with 4 large mixed evenly with 11 small teeth, basomesally with 4 small teeth.

*Labium.* 0.55 long, 1.03 wide. Anterior edge indented. Labiosternal suture a narrow continuous groove.

*Maxillae.* 1.28 long in front, 1.10 long behind, 0.83 wide. Heel truncated; anterior lobe short, with long defining groove.

*Sternum.* 2.50 long, 2.20 wide. Cordate, widest

at coxae I; all sigilla small, distinct, subcircular, marginal. Marginal setae like central.

**Legs.** Preening combs: 1 of 3 strong setae on proventral I, II; 1 of 5 strong setae on retrolateral IV.

**Spines.** Leg 1, fe d5w, pa p4w, ti p3, v5, me p1, v6, ta v1; leg 2, fe d5w, pa p4w, ti p3, v5, me p3, v7, ta v3; leg 3, fe d3w, r2w, pa p3w, d2w, r3w, ti p3, d2, r3, v5, me p5, r3, v8, ta v3; leg 4, fe d5w, pa p3w, r2, ti p3, r3, v8, me p4, r3, v9; ta v3; fe d3, pa p2, d1, ti p2, v6, ta v7.

**Claws.** ca.9 teeth in S-shaped row on paired claws of I, IV; unpaired claw with 1 small tooth; palpal claw with 10 teeth in straight line on medial keel.

**Trichobothria.** As in ♂.

**Spermathecae.** Two, each an inner long sclerotised spiralled duct with short straight unsclerotised outer lobe. Epigastric furrow extended in curve from outer edge of anterior booklung cover extending posteriorly to line at about half length of posterior booklung covers.

**Spinnerets.** PMS 1.42 long, 0.32 wide, 1.20 apart, and ca. 0.50 of basal PLS in diameter. Basal, middle, apical, total segments of PLS, 2.25, 2.15, 2.27, 6.67 long, respectively.

#### DISTRIBUTION AND HABITAT

Known only from vine thicket on the summit of Mt Archer, MEQ.

#### PHYLOGENY

The phylogenetic position of this species poses a dilemma. A phylogeny of some Australian Evagrini was implicit in Raven (1984). All *Australothele* males have a secondary spine on the spur of tibia I and distinct thorn on lower metatarsi I. Males of all species, except *A. magna*, which lack spurs on tibia I, have clustered spines on tibia I. Hence, *A. magna* is the sister group of all other species of *Australothele*. Neither the secondary spine nor the metatarsal thorn are found in *Namirea*. In *Namirea*, the first leg lacks a spur but in *N. insularis*, a cluster of spines is present. Also, metatarsus and sometimes also tibia I have a dorsal flat area demarcated by a distinct ridge (Raven, 1984, figs. 201, 202). In *N. dougwallacei*, the form of the spur and spine cluster on tibia I resembles that in some *Australothele*. However, other autapomorphies in *Namirea* override any notion that the spur similarity derives from recent common descent. Equally, the encumbent increase in homoplasies in both *Australothele* and *Namirea* imposed by interposing *N. dougwallacei* between *A. magna*

and other *Australothele* species is too severe to be acceptable.

#### *Namirea johnlyonsi* sp. nov.

(Figs 1, 5, 6. Tables 3, 4)

#### MATERIAL EXAMINED

**HOLOTYPE** ♂, Mt Spec National Park, 19°00'S 146°09'E, NEQ, on embankment at ecotone of rainforest, *Casuarina*, and eucalypt forests, 3 Sep 1988, R. Raven, J. Gallon, T. Churchill, QMS11225; **ALLOTYPE** ♀, 2 paratype ♀ ♀, same data as holotype, QMS19704-5.

#### DIAGNOSIS

Females differ from those of *N. montislewisi* in the narrow form of the spermathecae and males differ from those of *N. dougwallacei* in having a lower spur on tibia I.

Small to medium-sized; preening combs present on legs I, II, IV. Two spermathecae, each a bipartite lobe broadest basally. Tibia I with a ventral mound bearing one long and several smaller megaspines; metatarsus I proximally incrassate, slightly flattened dorsally. Tibia II distoventrally with long single spur tipped with small black megaspine. Palpal bulb long, pyriform with short embolus; cymbium with sclerotised distal edge.

#### ETYMOLOGY

The specific epithet is a patronym in honour of Mr John Lyons, Chairperson, Management Committee, Museum of Tropical Queensland, a branch of the Queensland Museum.

#### DESCRIPTION

Holotype male QMS11225

Carapace 3.20 long, 2.92 wide. Abdomen 3.44 long, 2.08 wide. Total length, 7.

**Colour in alcohol.** Carapace, chelicerae and legs yellow brown, ocular area black, carapace with light mottled brown margins and two long triangles laterally on caput; tibia I orange brown. Abdomen entirely dark brown.

Table 3. Leg lengths of *N. johnlyonsi*, holotype ♂.

Leg	1	2	3	4	Palp
Femur	3.20	3.24	3.52	3.72	2.28
Patella	2.04	2.12	1.80	2.20	1.52
Tibia	2.36	2.28	2.08	3.12	1.68
Metatarsus	2.36	2.44	3.08	3.84	—
Tarsus	1.16	1.28	1.52	1.56	1.68
Total	11.12	11.36	12.00	14.44	7.16

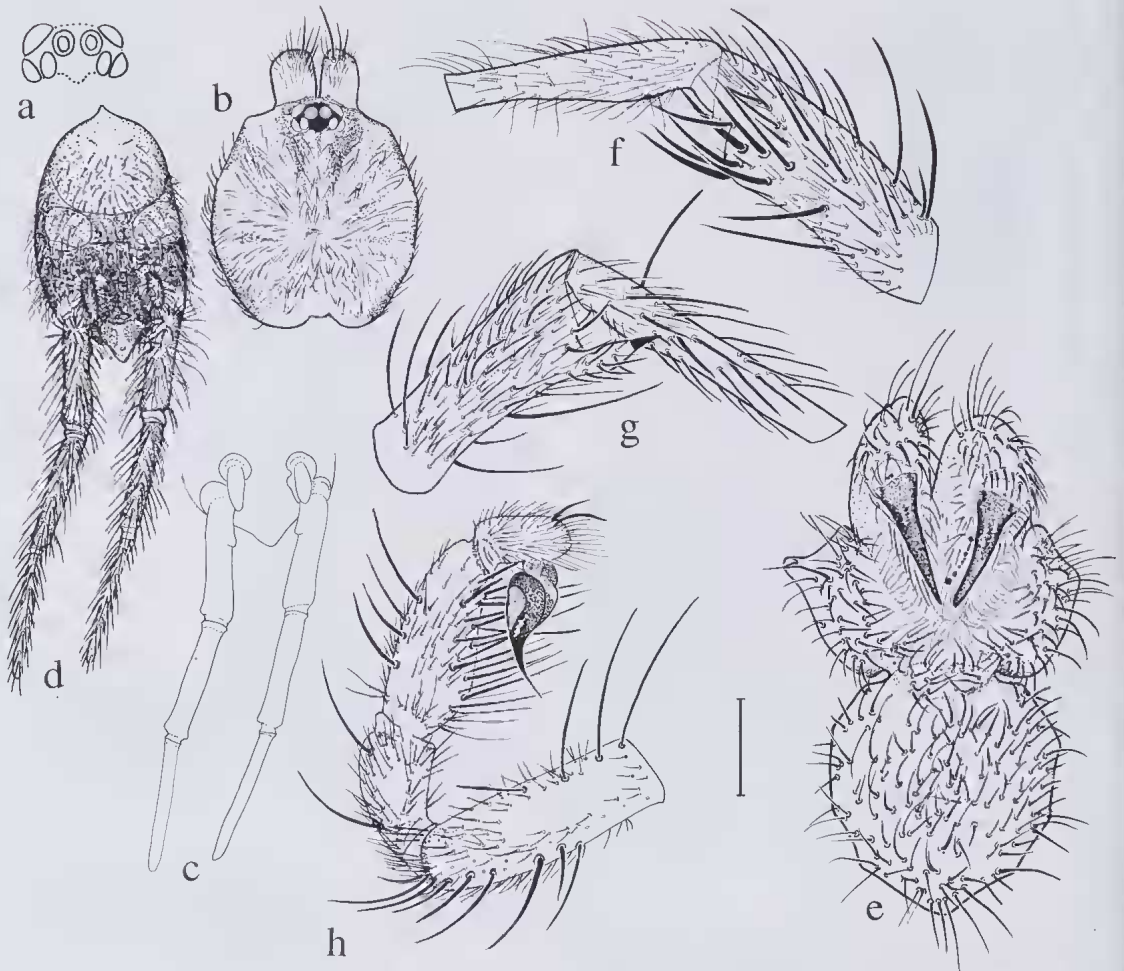


FIG. 5. *Namirea johnlyonsi* sp. nov., holotype ♂ (QMS11225). a, eyes, dorsal view; b, carapace & chelicerae, dorsal view; c, spinnerets, ventral view; d, abdomen, ventral view; e, chelicerae, sternum, maxillae & labium, ventral view; f, tibia I, retrolateral view; g, tibia & metatarsus II, prolateral view; h, palp showing tibia, cymbium & palpal bulb, prolateral view. Scale line = 2mm (b-d); 1mm (a, e-h).

**Carapace.** Pilosity: margins with line of fine brown setae; one pair of foveal bristles; light cover of fine gray hair on caput and interstrial ridges; striae distinct, glabrous. Caput low, flat. Fovea a small open pit. Clypeus absent.

**Eyes.** Tubercle steep, distinct. Front row slightly procurved; back row recurved. Group occupies 0.49 of head-width; front width, back width, length, 34, 37, 20, respectively. MOQ front width, back width, length, 18, 26, 17, respectively. AME:ALE:PME:PLE, 10:13:9:10. Eye interspaces: AME-AME, 0.3; AME-ALE, 0.2; ALE-PLE, 0.4; PME-PME, 1.6; PME-PLE, 0; ALE-ALE, 1.5.

**Chelicerae.** Small, rounded, knee-like; with

few long and many short curved bristles prodorsally. Intercheliceral tumescence a small pallid area. Furrow promargin with 4 long mixed with 13 smaller teeth, basomesally with 5 teeth.

**Labium.** 0.40 long, 0.76 wide. Labiosternal suture a shallow continuous groove.

**Maxillae.** 0.98 long in front, 1.00 long behind, 0.60 wide. Heel rounded; anterior lobe rounded, distinct, serrulate.

**Sternum.** 1.68 long, 1.54 wide. Cordate with uniform cover of long erect bristles and short hairs. Sigilla six; all small, rounded.

**Legs.** Tibia I distally incrassate; apically a ventral mound bears one long and several smaller megaspines; metatarsus I proximally incrassate,



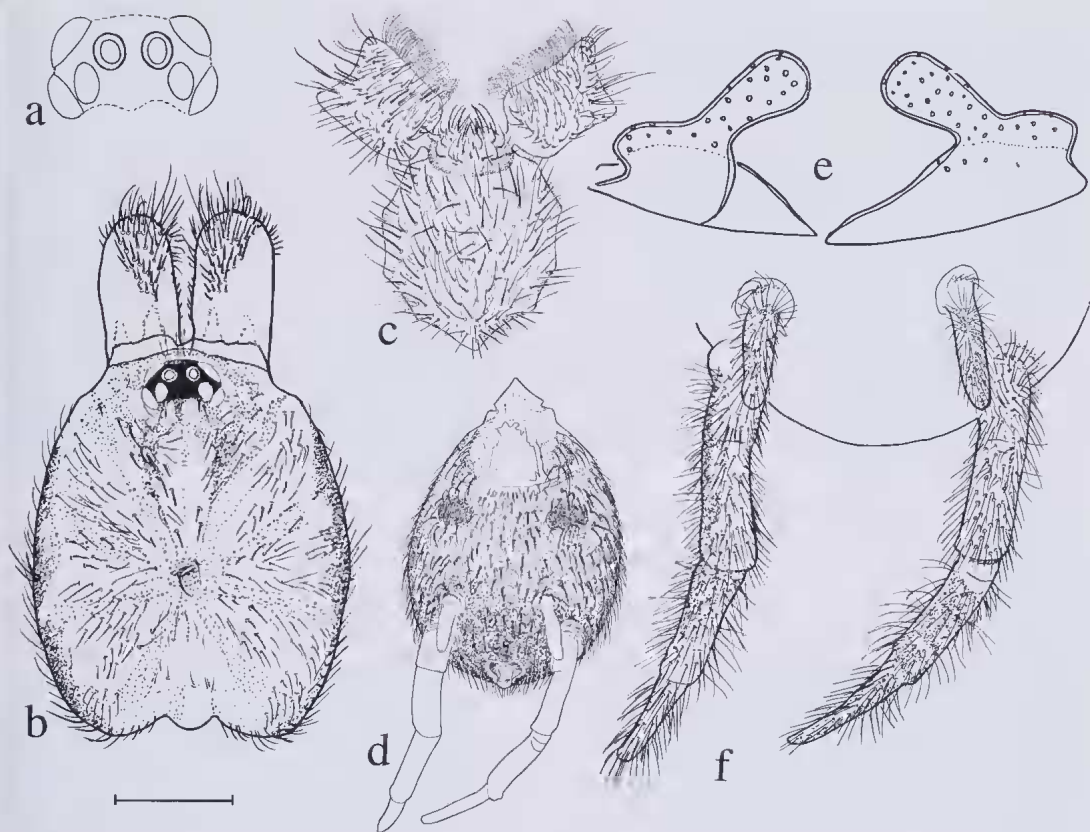


FIG. 6. *Namirea johnlyonsi* sp. nov., allotype ♀ (QMS19704). a, eyes, dorsal view; b, carapace & chelicerae, dorsal view; c, sternum, maxillae & labium, ventral view; d, abdomen, ventral view; e, spermathecae, dorsal view; f, spinnerets, ventral view. Scale line = 0.5mm (a, f); 2mm (b, c); 4mm (d); 0.25mm (e).

slightly flattened dorsally. Tibia II distoventrally with long single spur tipped with small black megaspine, passing prolaterally when metatarsus II is contracted; metatarsus II proximally excavate distal of which is incrassate area. Preening comb of 4 setae on retroventral IV. Scopula absent but sparse band of erect hairs ventrally on all tarsi.

**Spines.** Leg 1, fe d5, pa 0, ti p1w, v11, me 0, ta, 0; leg 2, fe d5w, pa p3w, ti p3w, v2 + megaspine, me p2, v5 ta, 0; leg 3, fe d5w, pa p4w, r2w, ti p3w, d2w, r3w, v6, me p3, r3, v5, ta, v2; leg 4, fe d6w, pa p2w, r2w, ti p3, r3, v5, me p3, r3, v5; palp, fe d5w, rest, 0.

**Claws.** One S-shaped row of 9 (I) to 7(IV) teeth on paired claws; unpaired claw bare.

**Trichobothria.** Two rows, each of 10 for half length of tibiae; ca. 10 on metatarsi in straight line; ca. 8 filiform in line on tarsi.

**Palp.** Bulb long pyriform with short embolus; cymbium with sclerotised distal edge.

**Spinnerets.** Australotheline crescent distinct.

PMS 0.72 long, 0.16 wide, 0.76 apart, and about 0.50 of basal PLS in diameter. Basal, middle, apical, total segments of PLS, 1.64, 1.60, 1.80, 5.04 long, respectively.

Allotype female QMS19704

Carapace 4.92 long, 4.00 wide. Abdomen 6.48 long, 4.80 wide. Total length, 13.

**Colour in alcohol.** Carapace and legs light orange brown, caput, lateral margins and interstitial ridges of carapace slightly darker. Abdomen brown.

**Carapace.** Oval; with uniform cover of fine gray hairs; lateral margins with few longer hairs; one pair of foveal bristles arising deep in fovea. Fovea a small pit with steep front edge forming recurved arc. Striac distinct, glabrous. A line of 4 erect setae on clypeal edge; clypeus narrow but distinct; few hairs between ALE and PME.

**Eyes.** Front row procurved; back row recurved. Group occupies 0.45 of head-width; front width, back width, length, 48, 52, 28, respectively. MOQ

front width, back width, length, 22, 35, 20, respectively. AME:ALE:PME:PLE, 9:15:11:12. Eye interspaces: AME-AME, 0.6; AME-ALE, 0.4; ALE-PLE, 0.6; PME-PME, 2.6; PME-PLE, 0.1; ALE-ALE, 2.7.

*Chelicerae*. Stout, porrect with ca 20 long black and many shorter setae dorsally. Fangs short. Furrow promargin with 3 large mixed with 13 smaller teeth, basomesally with 7 teeth and 20-30 granules.

*Labium*. Like ♂, 0.48 long, 1.12 wide.

*Maxillae*. Rectangular; anterior lobe distinct but with delimiting groove; 1.48 long in front, 1.48 long behind, 0.92 wide; heel indistinct.

*Sternum*. Like ♂; 2.40 long, 2.24 wide. Sigilla all oval, marginal but anterior pair farthest from margin.

*Legs*. Covered with long curved setae and fine hair. Scopula absent. Preening combs: 1 of 3 setae on prolateral I, II, none of III; 1 of 4 setae retroventrally on IV.

*Spines*. Thicker setae scored as weak spines on femora. Leg 1, fe p6w, pa p3w, ti p3, v5, me p1, v5; ta, 0; leg 2, fe d5w, pa p1w, ti p3, v5, me p3, v5, ta, v2; leg 3, fe d5w, pa p3w, r3, ti p3, r3, v5, me p3, r3, v7, ta, v2; leg 4, fe d5w, pa p3, r2, ti p3, d4w, r3, v6, me p3, r3, v7, ta, d1, v3; palp, fe d5w, pa 2w, ti p2,w, v7, ta v9.

*Claws*. S-shaped line of 15 (I) to 9(IV) teeth on paired claws; 3 on unpaired claws; palpal claw with 12 teeth in one medial line.

*Trichobothria*. Two rows, each of ca. 10 for half length of tibiae; ca. 18 on metatarsi; ca. 8 on tarsi.

*Spermathecae*. Two, each a bipartite lobe broadest basally.

*Spinnerets*. PMS 1.48 long, 0.32 wide, 2.08 apart, and about 0.53 of basal PLS in diameter. Basal, middle, apical, total segments of PLS, 2.56, 2.08, 2.08, 6.72 long, respectively.

#### DISTRIBUTION AND HABITAT

Known only from Mt Spec NP, NEQ, in a mixed forest ecotone including *Casuarina*, eucalypts, and rainforest. The species was not found at higher altitudes in an evidently highly disturbed rainforest where ground fauna was generally depauperate. Nor was it evident in less

Table 4. Leg lengths of *N. johnlyonsi*, allotype ♀

Leg	1	2	3	4	Palp
Femur	2.64	2.40	2.60	3.08	1.68
Patella	1.44	1.60	1.36	1.36	0.96
Tibia	1.92	1.92	1.96	2.56	1.36
Metatarsus	1.92	2.12	2.72	3.60	—
Tarsus	1.04	1.32	1.40	1.80	0.72

disturbed adjacent areas of rainforest. Clearly, the preference of this group for embankments indicates that it will take advantage of the microhabitats provided by road cuttings. (A similar phenomenon was noted by Raven, 1991 in New Caledonian diplurids.) Like many mygalomorphs in Australia, this group is more diverse in open forest habitats.

#### WEB

The web had bluish white curtains of silk extending 8-10 cms from the overhang of an embankment beside a road. Several corridors lead to a branching main tube extended only 3-4cm into the soil.

#### ACKNOWLEDGEMENTS

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